AP-005

SERVICE MANUAL

PARTS LIST

MODEL AP-005

AKAI

AUTOMATIC-TURNTABLE

MODEL AP-005

SECTION 1 SERVICE MANUAL 1

SECTION 2 PARTS LIST 21

SECTION 1

SERVICE MANUAL

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I. TECHNICAL DATA

1. TURNTABLE SECTION

TURNTABLE	300 mm aluminium alloy die-cast turntable
DRIVE SYSTEM	Belt drive
MOTORS	(2) One 4-pole hysteresis synchronous motor for turntable drive and a geared motor for tone arm drive
SPEED	33-1/3 and 45 rpm
WOW & FLUTTER	0.05% WRMS
SIGNAL TO NOISE RATIO	Better than 52 dB
WEIGHT	1.1 k grams

2. TONE ARM SECTION

TONE ARM	Static balanced type stainless steel tubular arm with inside force canceler and lateral balance weight
ARM LENGTH	220 mm
STYLUS PRESSURE ADJUSTMENT RANGE	0 to 3 grams
APPLICABLE CARTRIDGE WEIGHT	4 to 8 grams (8 to 12.5 grams using sub-weight)
ARM LIFTER	Oil damped
OVERHANG	15 mm
SHELL WEIGHT	13.5 grams

3. CARTRIDGE SECTION

CARTRIDGE	VM (dual magnet type) Audio Technica model AT-11 with 0.7 mil spherical diamond stylus.
FREQUENCY RESPONSE	15 to 25,000 Hz
OUTPUT VOLTAGE	4 mV (1,000 Hz 50 mm/sec)
CHANNEL SEPARATION	20 dB (1,000 Hz)
OPTIMUM STYLUS PRESSURE	2 grams
REQUIRED LOAD IMPEDANCE	47 to 100 k ohms
WEIGHT	5.5 grams

4. GENERAL SPECIFICATIONS

POWER REQUIREMENTS	CSA Models ..... 120V, 60 Hz CEE Models ..... 220V, 50 Hz Other Models ..... 110 to 120V/220 to 240V, 50/60 Hz (Switchable)
DIMENSIONS	440(W) x 128(H) x 358(D) mm (17.4" x 50" x 14.1")
WEIGHT	7.6 kg (16.7 lbs.)

NOTE: For improvement purposes, specifications and design are subject to change without notice.

II. DISMANTLING OF UNIT

In case of trouble, etc. necessitating disassembly, please disassemble in the order shown in photographs. Reassemble in reverse order.

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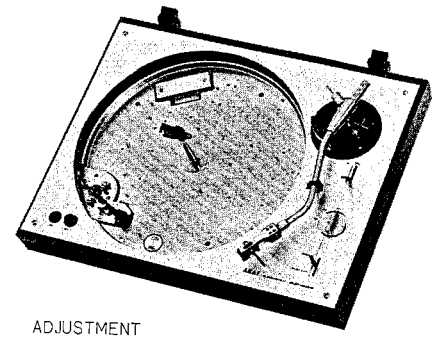
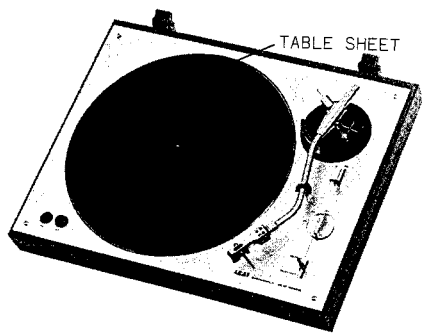


ADJUSTMENT

1



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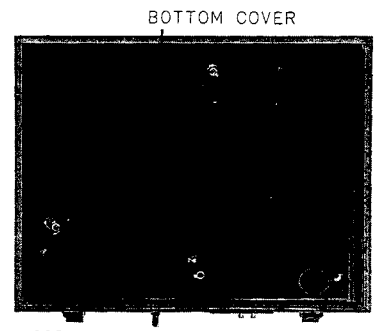
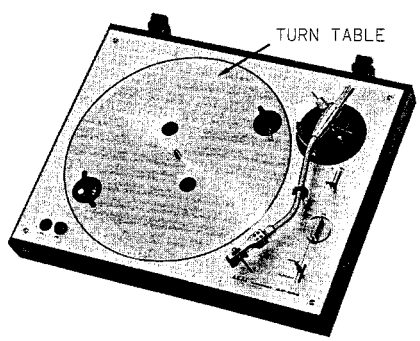


LOOSEN THESE SCREWS SLIGHTLY

2



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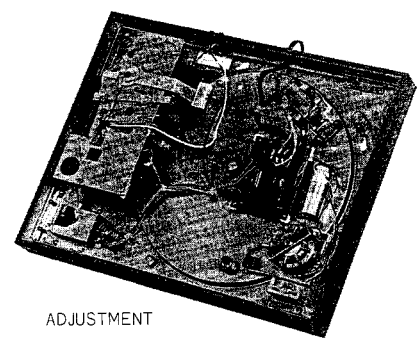
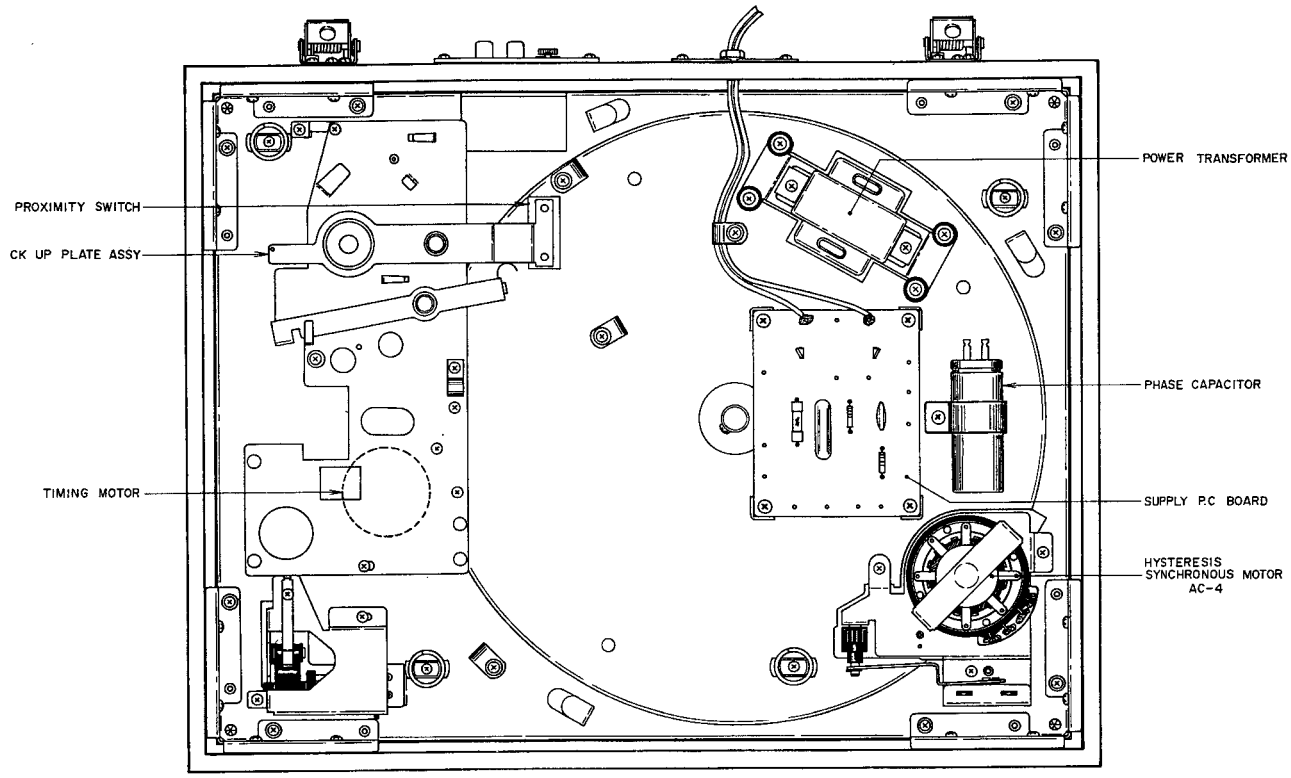
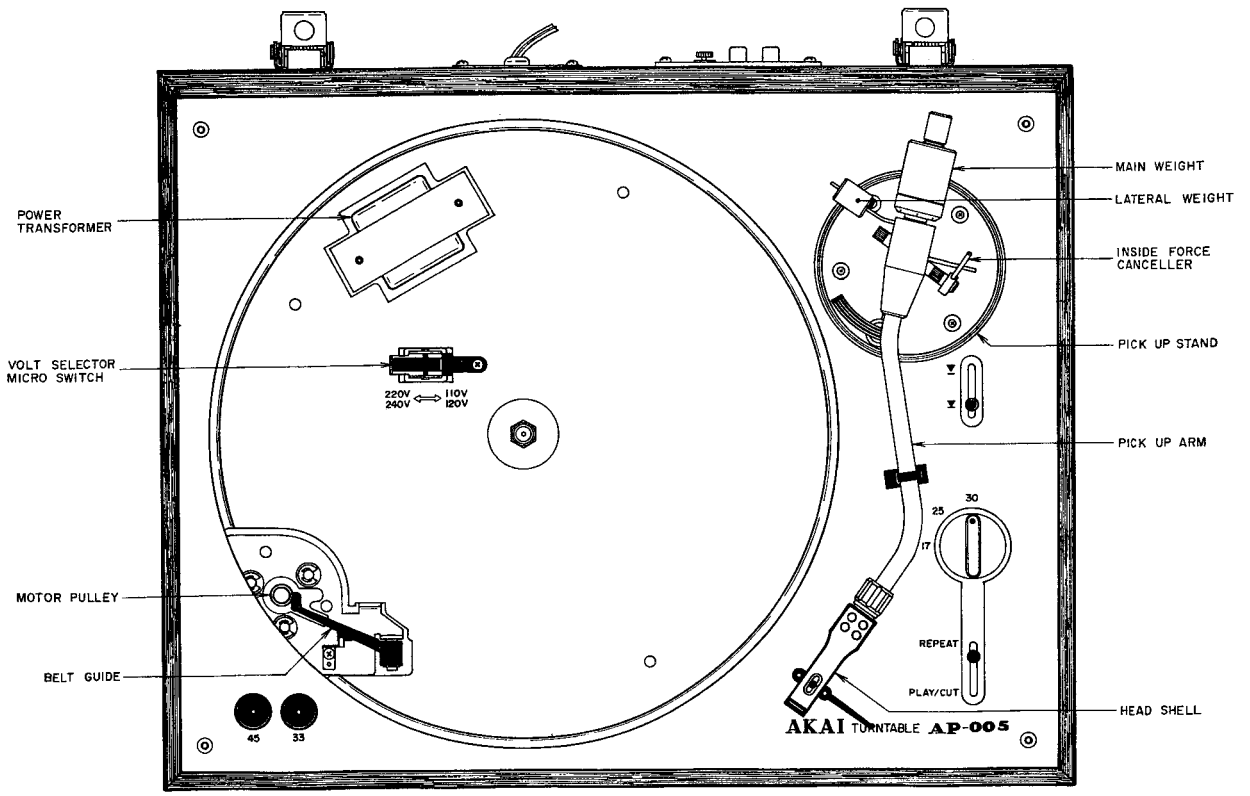


ADJUSTMENT

III. ARRANGEMENT OF PRINCIPAL PARTS





IV. AUTOMATIC MECHNISM ADJUSTMENT

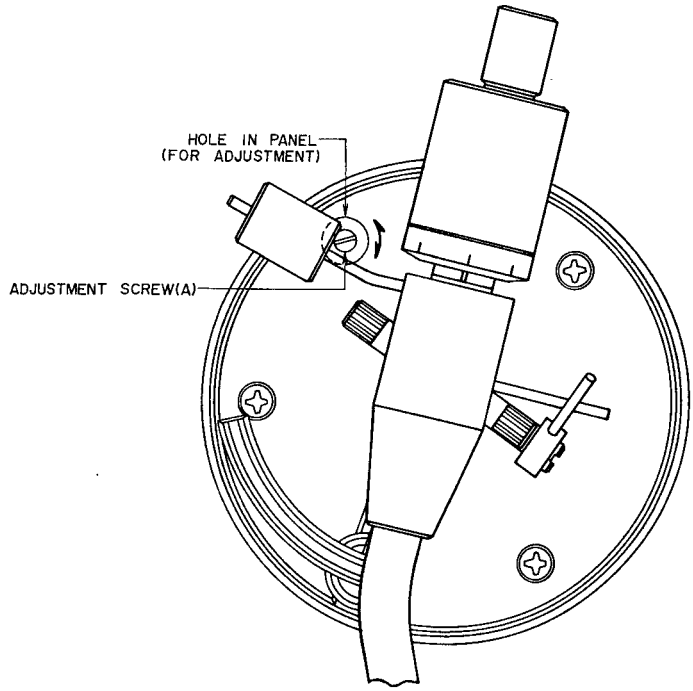


Fig. 1

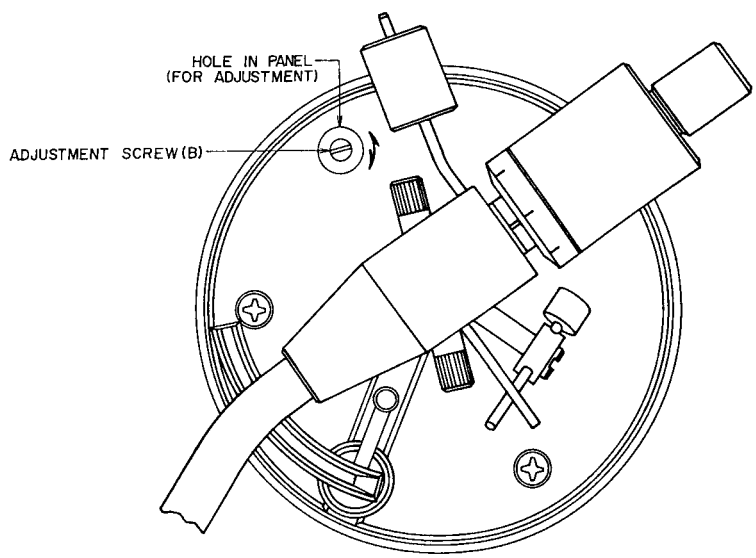


Fig. 2

1. LEAD IN POSITION ADJUSTMENT

Remove the rubber plug which is located on panel toward the rear part of the pick-up arm. When the pick-up arm is moved from the position shown in Fig. 1 toward the position shown in Fig. 2 adjustment screw (B) becomes accessible through the hole from which the rubber plug has been removed as the lead-out position is approched. When adjustment screw (B) is turned clockwise, lead-in is adjusted further inward and when turned counter-clockwise, further outward.

Therefore, adjust lead-in position as follows:

For adjusting toward inner circumference turn clockwise.

For adjusting toward outer circumference turn counter-clockwise.

NOTE: 1. When the adjustment screw is turned one revolution, the position of the pick-up arm stylus is changed by about 2 mm.

2. When using the standard accessory cartridge, adjust so that on a 30 cm record, lead-in takes place between 298ϕ and 293ϕ, on a 25 cm record, lead-in takes place between 247ϕ and 242ϕ, and on a 17 cm record, lead-in takes place between 173ϕ and 168ϕ.
(These diameters are measured with Center Spindle as center position.)

3. After adjustment, be sure to re-install rubber plug.

2. LEAD OUT POSITION

Remove the rubber plug which is located on panel toward the rear part of the pick-up arm. Stationary the pick-up arm (on arm rest) as shown in Fig. 1. At this position, adjustment screw (A) becomes accessible through the hole from which the rubber has been removed. When adjustment screw (A) is turned clockwise, lead-out will be sooner and when turned counter-clockwise, lead-out will be delayed.

Therefore, adjust lead-in position as follows:

For adjusting toward outer circumference turn clockwise.

For adjusting toward inner circumference turn counter-clockwise.

NOTE: 1. When the adjustment screw is turned one revolution, the position of the pick-up arm stylus is changed by about 2 mm.

2. When using the standard accessory cartridge, adjust so that on a 30 cm or 25 cm record, operation begins between 115ϕ and 109ϕ, and on a 17 cm record, operation begins between 106ϕ and 98ϕ.
(These diameters are measured with Center Spindle and Center Position.)

3. After adjustment, be sure to re-install rubber plug.

V. CYCLE CHANGE (MOTOR PULLEY REPLACEMENT)

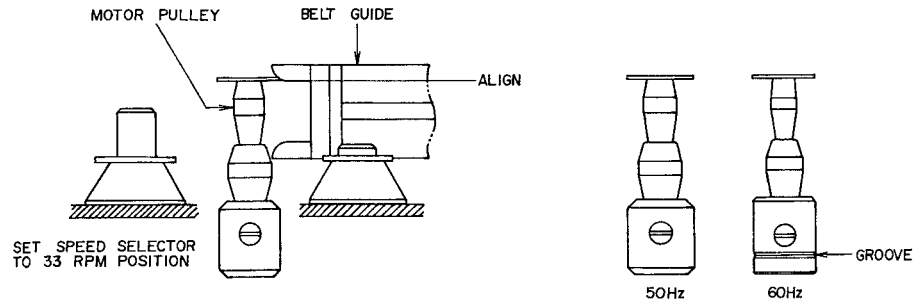


Fig. 3

50 Hz and 60 Hz cycle change is effected by changing the motor pulley.
50 Hz and 60 Hz differentiation can be determined by the groove on the 60 Hz pulley.
While viewing horizontally as shown in Fig. 3, install so that the lower part of the motor pulley brim and the lower part of the belt guide are lined up.
Set speed selector to 33 rpm position, install the belt and switch on power. If a rumbling noise from the belt can be heard and speed changing is not smooth, adjust installation position of motor pulley.

VI. PLAYER CARE

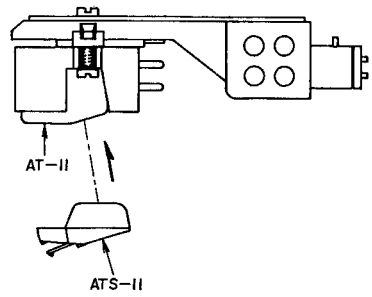


Fig. 4

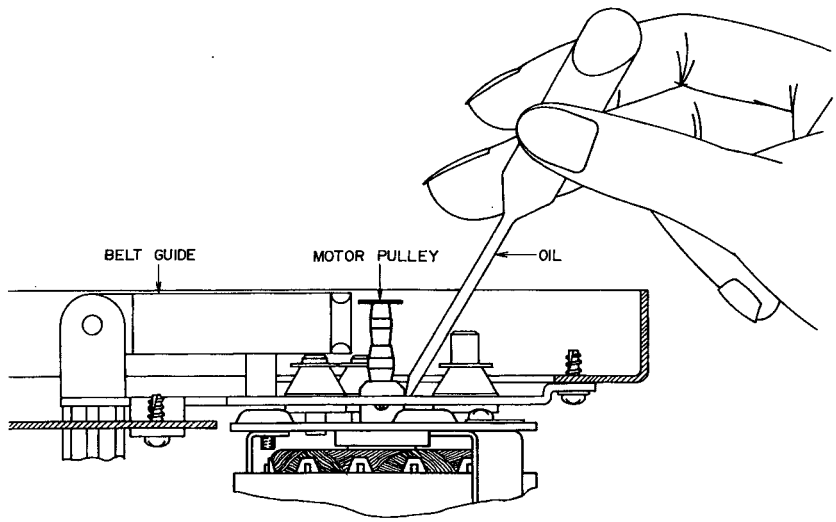


Fig. 5

1 LIFE OF STYLUS

The lifetime of stylus is about 500 hrs. of use (about 1000 30 cm LP records.) If the stylus becomes old, because the record will be damaged and tone quality will become inferior, be sure to replace as soon as is needed. If records on which dust is allowed to accumulate are played, the stylus will wear especially fast and the record surface will be scratched. Therefore, please be sure to keep record clean by wiping and cleaning the record grooves with water soaked gauze. Also if dust adheres to the turntable sheet (rubber mat), as this will cause the record to become dirty easily, the mat should also be kept clean.

2. STYLUS CHANGE

When replacing stylus, be sure that the stylus (ATS-11) is inserted properly in the direction of the arrow mark shown in Fig. 4 and fits into cartridge firmly. Use only model ATS-11 stylus which is for use in model AT-11 cartridge.

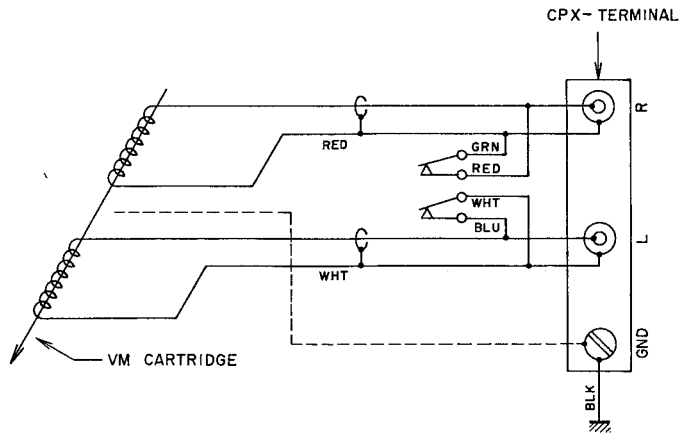
3. LUBRICATION

Because for rotating parts and parts which rub together during operation, oilless metal and the best grease or oil is used, your machine will not need lubrication for some time. About once per year, use standard accessory player oil and apply one or two drops to the motor shaft as shown in Fig. 5. In case you do not have player oil, use #60 spindle oil or a high grade machine oil. If used continually for business purposes, etc., oil about once or twice per month.

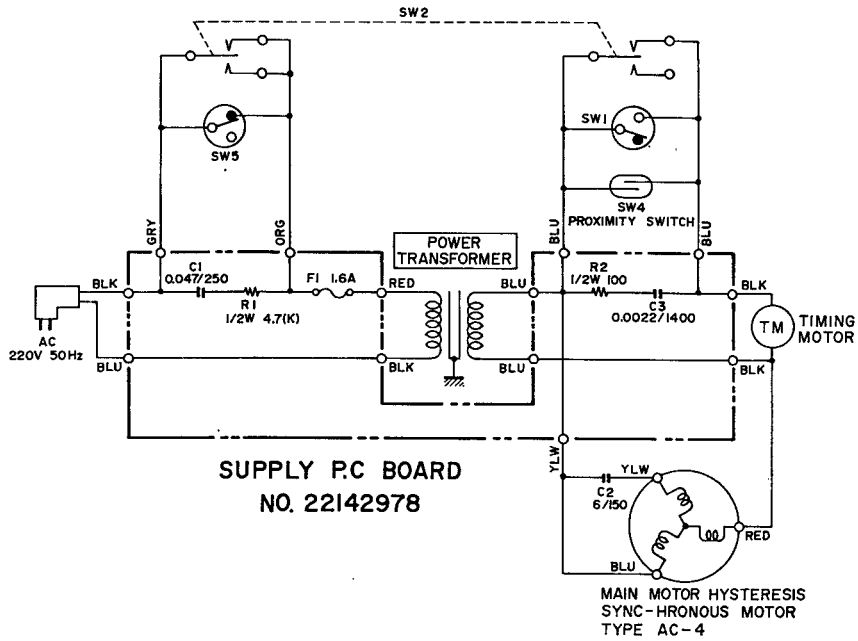
CAUTION: Following lubrication, because oil will adhere to the drive belt and pulley and to the turntable etc., wipe the oil off of these parts with a cloth to which a little carbon tetrachloride or thinner (benzine can be also be used) has been applied.

VII. BLOCK DIAGRAM

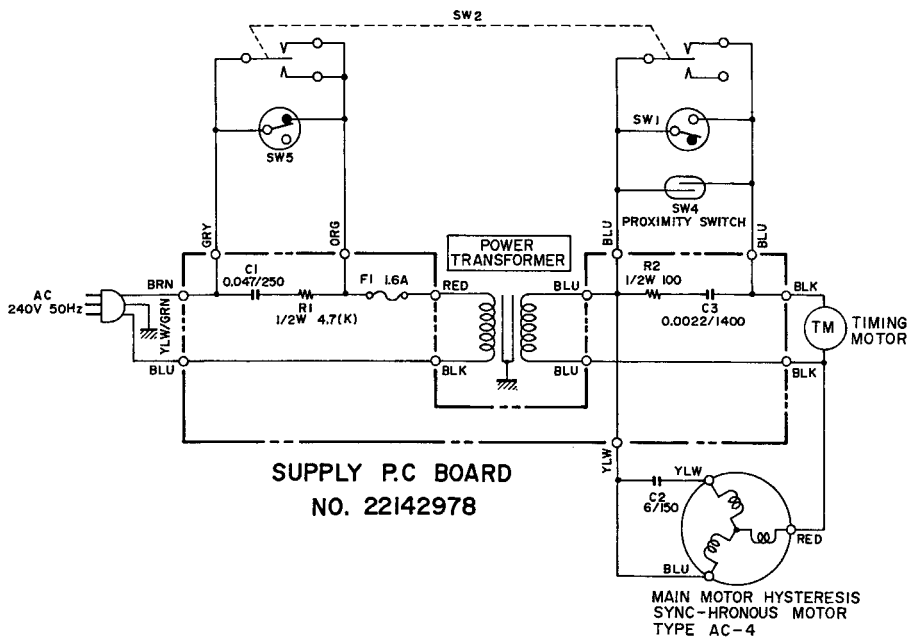
1. CARTRIDGE

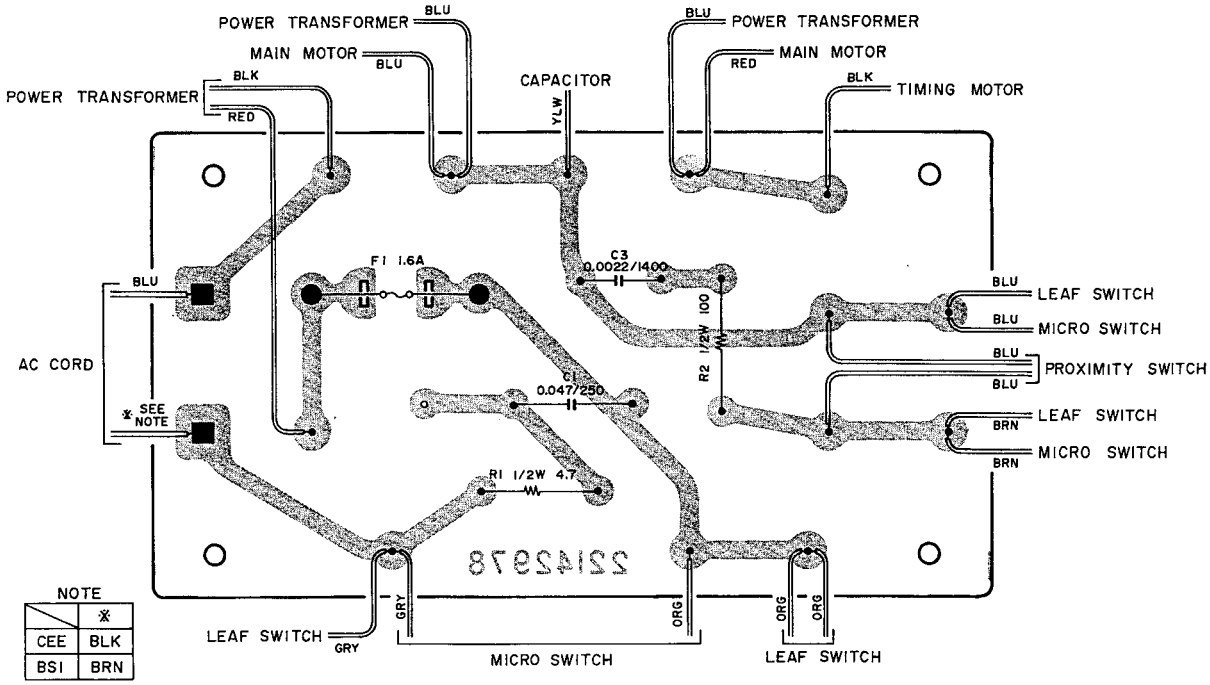


2. CEE MODELS

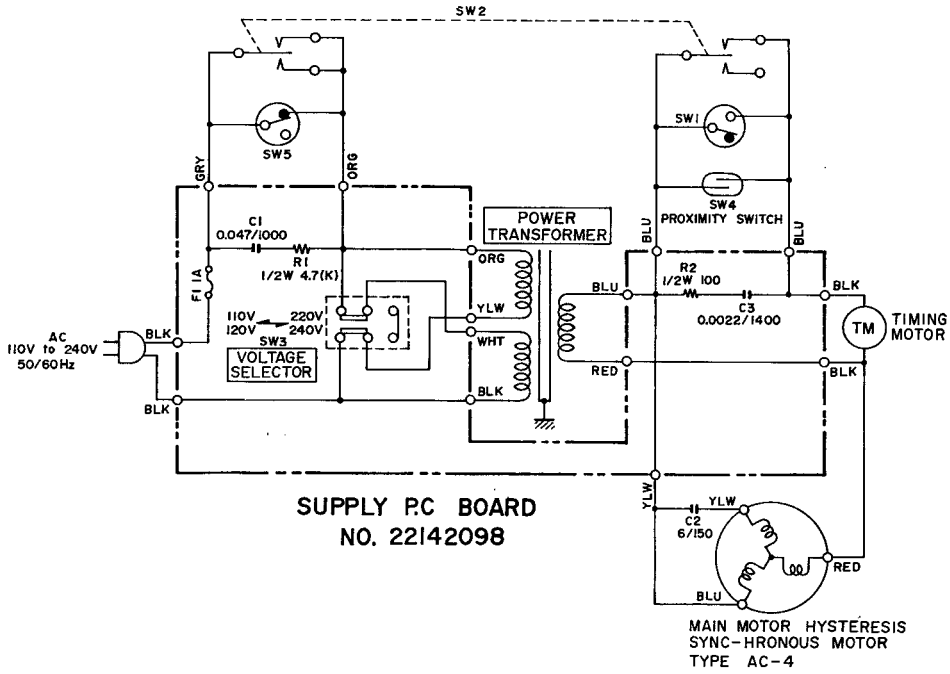


3. BSI MODELS

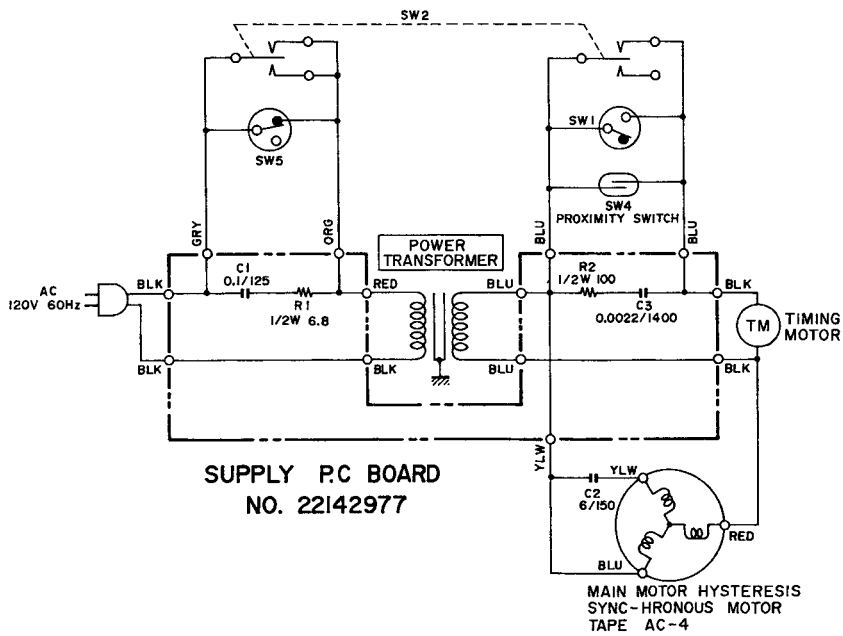


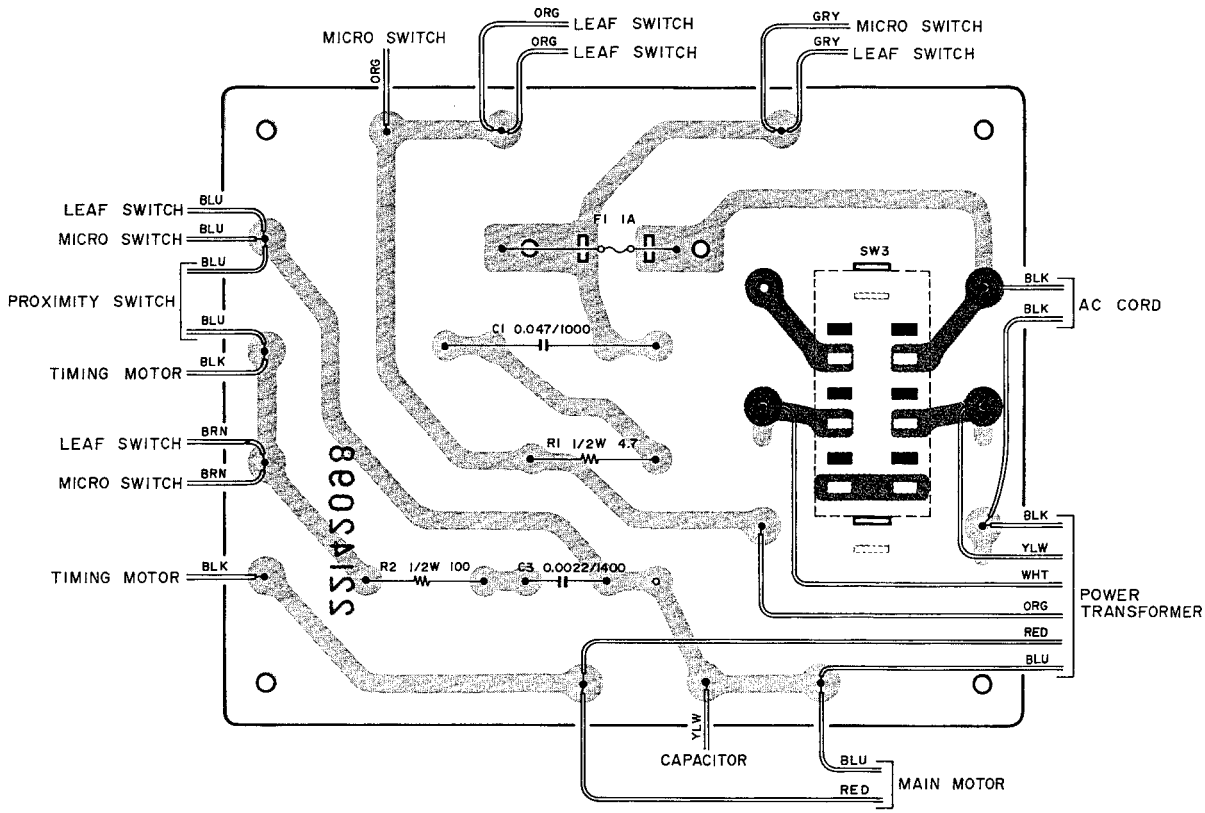

POWER TRANSFORMER
BLU
MAIN MOTOR
BLU
POWER TRANSFORMER
BLK
RED
CAPACITOR
YLW
BLU
POWER TRANSFORMER
RED
MAIN MOTOR
BLK
TIMING MOTOR
F1 1.6A
C3
0.0022/1400
BLU
AC CORD
BLU
* SEE NOTE
C1
0.047/250
R2 1/2W 100
R1 1/2W 4.7
BLU
LEAF SWITCH
BLU
MICRO SWITCH
BLU
BLU
PROXIMITY SWITCH
BRN
LEAF SWITCH
BRN
MICRO SWITCH
NOTE
※
CEE
BLK
BSI
BRN
LEAF SWITCH
GRY
GRY
MICRO SWITCH
ORG
ORG
ORG
LEAF SWITCH

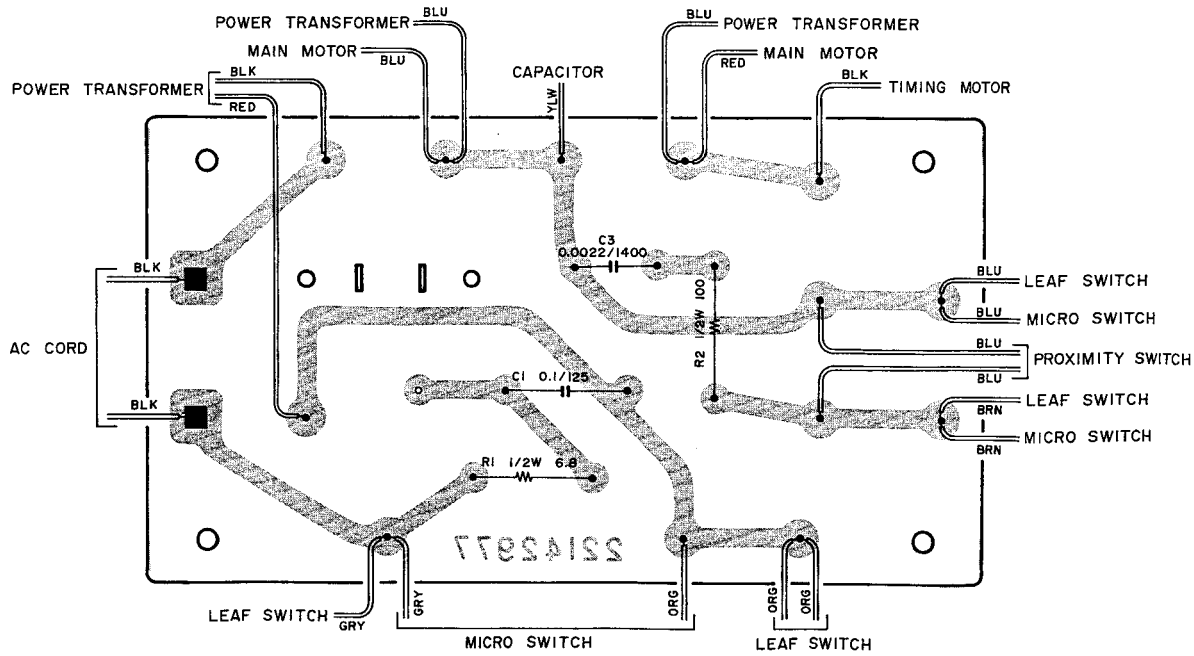
4. SWITCHABLE MODELS



5. CSA MODELS




MICRO SWITCH
ORG
ORG LEAF SWITCH
ORG LEAF SWITCH
GRY MICRO SWITCH
GRY LEAF SWITCH
LEAF SWITCH BLU
MICRO SWITCH BLU
PROXIMITY SWITCH BLU
BLU
TIMING MOTOR BLK
LEAF SWITCH BRN
MICRO SWITCH BRN
TIMING MOTOR BLK
F1 1A
SW3
C1 0.047/1000
R1 1/2W 4.7
R2 1/2W 100
C3 0.0022/1400
BLK
BLK
AC CORD
BLK
YLW
WHT
ORG
RED
BLU
POWER TRANSFORMER
CAPACITOR
YLW
BLU
RED
MAIN MOTOR


POWER TRANSFORMER BLU
MAIN MOTOR BLU
POWER TRANSFORMER BLK
RED
CAPACITOR
YLW
BLU POWER TRANSFORMER
RED MAIN MOTOR
BLK TIMING MOTOR
C3 0.0022/1400
R2 1/2W 100
BLK
AC CORD
BLK
C1 0.1/125
R1 1/2W 6.8
BLU LEAF SWITCH
BLU MICRO SWITCH
BLU
BLU PROXIMITY SWITCH
BRN LEAF SWITCH
BRN MICRO SWITCH
LEAF SWITCH GRY
GRY
MICRO SWITCH
ORG
ORG
ORG
LEAF SWITCH

VIII. TROUBLE SHOOTING CHART

Condition	Explanation	Confirmation	Source	Countermeasure
Poor tone quality.	1. Distortion (When using new record)	1. Distortion persists after changing stylus and confirming normal pick-up arm operation. (Amp. Speaker normal)	Faulty cartridge.	Replace cartridge.
		2. Crackling sound even when playing new record. Especially vague at high range.	Worn stylus.	Replace stylus.
		3. A crunching sound exists and there is a sudden change in sound level. Also the level of right and left differs greatly.	Bent stylus.	Replace stylus.
		4. Sound is vague or distortion exists.	Dust adhering to stylus.	Clean stylus.
		5. Stylus jumps.	Insufficient pressure.	Readjust stylus pressure.
		6. Stylus sinks too far into cartridge body during record playback.	Too much pressure.	
	2. Hum noise	1. When pick up arm or player body is touched with your hand, hum noise increases.	Faulty grounding between cartridge and amp. in-put or turntable and amp.	Replace or repair ground wire.
		2. A hum is emitted from one channel (or both channels).	Faulty pin plug connection.	Connect correctly.
		3. Hum is altered by changing position of lead wire from pick-up.	Lead wire from pick-up and source wiring is too close together.	Move lead wire to obtain minimum hum.
	3. Left/right sound separation poor.	Using a monaural record, left/right sound scatters and is not emitted from the center. (Perfect Amp/Speaker connections)	The plus and minus terminals are reversed on one side at cartridge output pin and shell pin connection or faulty cartridge.	Connect plus and minus correctly. Replace cartridge.
	4. Distortion at one channel only.	1. Observe pick-up arm head during record performance.	Bent pick-up head.	Replace pick-up arm.
		2. After pick-up arm side pressure and zero balance adjustment, pick-up arm does not move smoothly by means of inside force canceller.	Pick-up arm rotating shaft faulty.	Replace pick-up arm assembly.
		3. Pick-up arm heavy or catches when moved to left and right by hand.	Installation of pick-up plate assembly faulty.	Correct pick-up plate installation height as specified.
	5. No sound.	1. Check pin plug cord lead-through with tester.	Disconnected or broken wire.	Replace pin plug cord.
		2. Check muting switch lead-through with tester and installation position.	Shorted. Installation position faulty.	Replace muting switch. Adjust installation position.
		3. Check cartridge terminal DC resistance with tester. (L ch, R ch)	Broken wire inside cartridge or shorted.	Replace cartridge.
Unusual noise	1. Mechanical noise. (direct noise)	1. Metal is rubbing against in rotating part of automatic mechanism.	Insufficient oil or grease. Catches on something irregular.	Clean and lubricate rotating part.
		2. Belt contacting belt guide.	Faulty motor pulley height.	Adjust height of motor pulley.
		3. During revolution vibration exists or noise is audible.	Faulty main motor.	Replace main motor.
		4. During motor rotation, if arm or table mount is touched with your hand, vibration is evident.	Faulty installation of motor or variation in motor cushions.	Adjust motor installation position. Replace motor cushions.
		5. Observe motor pulley during revolutions.	Variation in motor pulley.	Replace motor pulley.

Condition	Explanation	Confirmation	Source	Countermeasure
	2. Electrical noise. (from speaker)	1. Sometimes shock noise and hum is emitted.	Faulty pin plug cord connection. Lead wire leak or lead wire broken.	Re-connect. Replace or repair lead wire.
		2. When lead wire is moved, sound is cut or noise is audible.		
		3. Interference when upper part of shell is lightly tapped.	Defective cartridge. Faulty cartridge terminal connection.	Replace cartridge. Make proper lead wire connection.
		4. A rough scratching noise is emitted immediately prior to and immediately following record performance.	Faulty muting switch contact.	Replace muting switch. Clean contact point.
		5. Vibration and noise from motor, during revolutions.	Faulty main motor.	Replace main motor.
Turntable does not rotate. (or rotation is unstable)	1. Electrical circuit problem.	1. Check Supply P.C Board fuse with tester.	Fuse blown.	Replace with proper fuse. (1A)
		2. Check leaf-switch lead-through with tester.	Faulty contact points.	Replace leaf-switch.
		3. Check various parts of Supply P.C Board with tester.	Faulty parts.	Replace faulty parts
		4. Check main lead wires with tester.	Disconnected or broken lead wire.	Replace or repair lead wire.
		5. Check motor coils with tester.	Broken coil.	Replace motor.
	2. Table shaft out of order.	1. When rotor is rotated by hand, it catches or rotation is not light and smooth.	Insufficient oil (rotor shaft).	Clean and lubricate
		2. When turntable in rotated by hand it seems heavy. Unusual noise and too much rattle (with belt removed).	Table shaft, bearing defective or insufficient oil (table shaft and bearing)	Replace table shaft and bearing. Lubricate table shaft and bearing.
	3. Speed change mechanism	1. Slippage between belt, motor pulley and turntable.	Oil adhering to belt. Worn out belt	Replace belt. Clean with carbon tetrachloride or alcohol.
		2. Belt rubbing noise.	Faulty motor pulley height.	Adjust motor pulley height and motor slant.
	4. Revolutions too slow. (or uneven)	Check for variation in shape of belt and whether dust is adhering to belt, motor pulley and turntable.	Variation of belt. Dust.	Replace belt. Clean with carbon tetrachloride or alcohol.
Automatic mechanism does not function.	1. Does not lead-in. (Check arm rest clamp to see whether it has come off.)	1. Check Supply P.C Board fuse with tester.	Fuse blown.	Replace fuse (1A)
		2. Check leaf-switch lead-through with tester.	Faulty contact points.	Replace leaf-switch.
		3. Vibration occurs when low speed motor is touched with your hand, but does not rotate.	Faulty motor.	Replace low speed motor. (Timing motor)
		4. Check low speed motor lead-through with tester.	Broken wire or short.	
		5. Low speed motor rotates, but Action-Cam does not move at all.	Action-Cam installation screws loose.	Tighten installation screws.
		6. Low speed motor and Action-Cam vibrate.	Variation in shape or Crank-Lever.	Replace or repair Crank-Lever.
		7. Turn-Plate rotation is not smooth and rotation is not exactly 90° each time.	Tortion-Spring has come off or lost it's strength.	Re-install or replace Torsion-Spring.
		8. The lifter is very high and pick-up arm does not ride on the arm rest.	Faulty lifter height.	Adjust lifter height.
		9. Manual lifter knob can be brought DOWN, but stylus does not lower. Pick-up arm displays horizontal motion only.	Faulty manual lifter.	Replace hand lifter assembly.

Condition	Explanation	Confirmation	Source	Countermeasure
		10. Stiff motion when arm is lowered or catches while being lowered.	Insufficient oil (lifter shaft). Dust.	Clean and oil lifter shaft.
	2. Does not lead-out.	1. When arm is brought gently to record level by hand, normal lead-out operation begins.	Faulty installation of pick-up plate assembly.	Re-install pick-up plate assembly.
		2. When pick-up arm is brought inward, PROXIMITY-SWITCH and magnet are not horizontally aligned and the gap is not 1 to 2 mm.	Installation part of magnet bent. Switch position faulty.	Repair pick-up arm plate assembly. Adjust PROXIMITY-SWITCH installation position.
		3. When knob is brought to CUT position, lead-out operation begins normally.	PROXIMITY-SWITCH defective.	Replace PROXIMITY-SWITCH.
	3. Does not stop from continuous play.	1. Check leaf-switch lead-through with tester.	Faulty leaf-switch contact point.	Replace leaf-switch.
		2. Check with tester according to schematic diagram.	Lead wire shorted.	Repair wiring.
		3. When the Cut Knob is slanted a little foward the PLAY/CUT side, continuous play is stopped.	Variation in shape of or faulty installation of plate spring. Insufficient grease.	Replace or properly install plate spring Grease.
	4. Automatic operation is not smooth or stops during operation.	1. Stiff motion when arm is lowering or catches while lowering.	Insufficient oil (Action-Plate Assembly).	Grease. Overhaul lifter and grease.
		2. When the low speed motor is touched with your hand, it stops immediately.	Insufficient torque.	Replace low speed motor.
	5. Incorrect lead-in position.	1. Check to see whether pick-up arm lock-nut is loose.	Faulty installation position.	Tighten holding lock-nut. Properly install.
		2. Check to see if cartridge is in center of shell.		
		3. Check to see whether pick-up plate assembly is loose when moved by hand.	Faulty installation position.	Tighten installation holding screw.
		4. Check loose play of pick-up arm bearing part.	Defective pick-up arm.	Replace pick-up arm.
		5. With selector knob set to 30 and using a 30 cm record, the lead-in position is off by about 2 to 3 mm.	Faulty adjustment.	Tighten adjustment screw at optimum adjusted position.
	6. Incorrect lead-out position.	1. Pick-up arm lock-nut with which the cartridge is installed is loose.	Improper cartridge installation.	Correct installation.
		2. Check to see if cartridge is in center of shell.		
		3. When pick-up arm is brought inward, PROXIMITY-SWITCH and magnet are not horizontally aligned, and the gap is not 2 to 2.5 mm.	Installation on part of magnet bent. Faulty switch installation position.	Repair pick-up arm plate assembly. Adjust PROXIMITY-SWITCH installation position.
		4. When selector knob is switched to and from 17 and 25, PROXIMITY-SWITCH does not move or movement is poor.	Switch lever B is bent.	Repair or replace switch lever B.
		5. Too much loose play or pick-up arm bearing part.	Defective pick-up arm.	Replace pick-up arm.
		6. Pick-up plate assembly installation screws loose.	Faulty installation.	Tighten installation holding screws.
		7. With selector knob set to 30 and using a 30 cm record the lead-out position is off by about 2 to 3 mm.	Faulty adjustment.	Tighten adjustment screw at optimum adjusted position.

Condition	Explanation	Confirmation	Source	Countermeasure
	7. Does not repeat. (lead-in operates normally.)	1. With cut knob set to REPEAT, check leaf-switch lead-through with tester.	Faulty contact.	Replace leaf-switch.
		2. Cut knob cannot be set to REPEAT.	Variation in shape of plate-spring or damaged.	Repair plate-spring Replace plate-spring.
	8. Cannot manually manipulate.	1. When pick-up arm is moved to the vicinity of the outer circumference of a 30 cm record, Plate Manual-B does not properly drop from pick-up arm plate assembly.	Faulty installation position of pick-up plate assembly.	Adjust installation position.
		2. Manual-Plate-B does not operate smoothly.	Variation in shape of or faulty installation of Manual-Plate-A or B.	Repair or replace
Operation of Manual lifter faulty. (at record performance)	1. Lifter does not work when set to DOWN position.	Insufficient oil inside cylinder.	Insufficient oil.	Replace lifter assembly.
	2. Does not operation when lifter is brought up or down.	Check lifter plate.	Variation in shape or bent.	Repair or replace
		Check plate spring.	Variation in shape of or faulty installation.	Repair or replace or properly install

SECTION 2

PARTS LIST

TABLE OF CONTENTS

1. ASSEMBLY BLOCK (1) 23
2. ASSEMBLY BLOCK (2) 24
3. CABINET BLOCK 27
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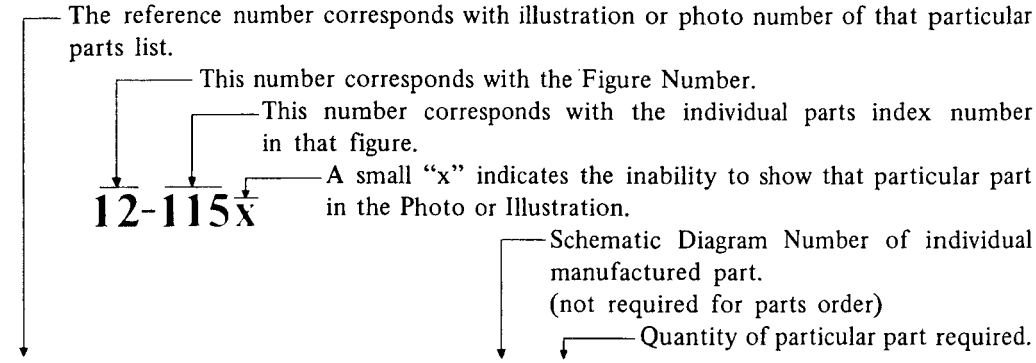
HOW TO USE THIS PARTS LIST

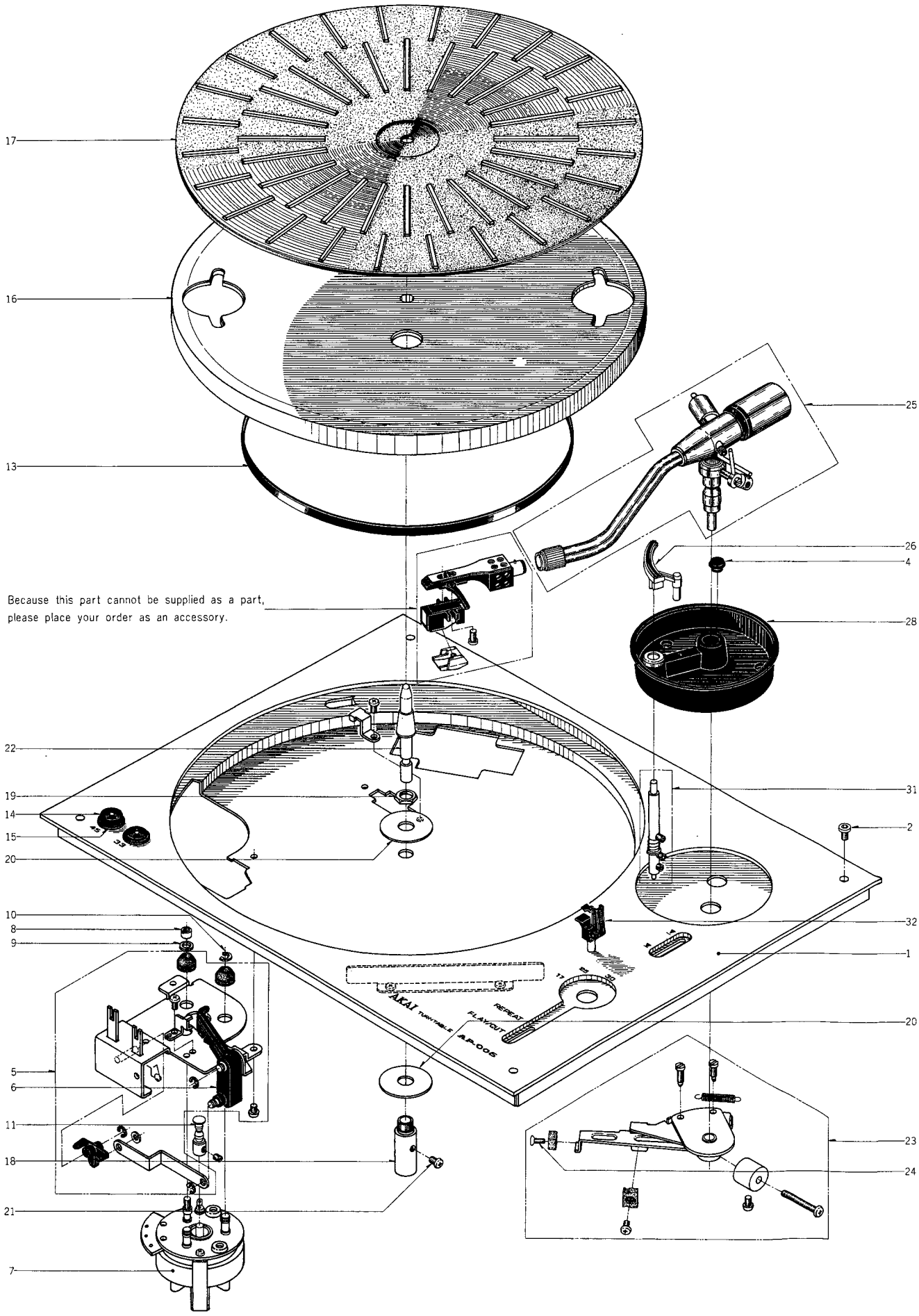
1. This parts list is compiled by various individual blocks based on assembly process.
2. When ordering parts, please describe parts number, serial number, and model number in detail.
3. How to read List


The reference number corresponds with illustration or photo number of that particular parts list.
This number corresponds with the Figure Number.
This number corresponds with the individual parts index number in that figure.
A small "x" indicates the inability to show that particular part in the Photo or Illustration.
12-115x
Schematic Diagram Number of individual manufactured part.
(not required for parts order)
Quantity of particular part required.

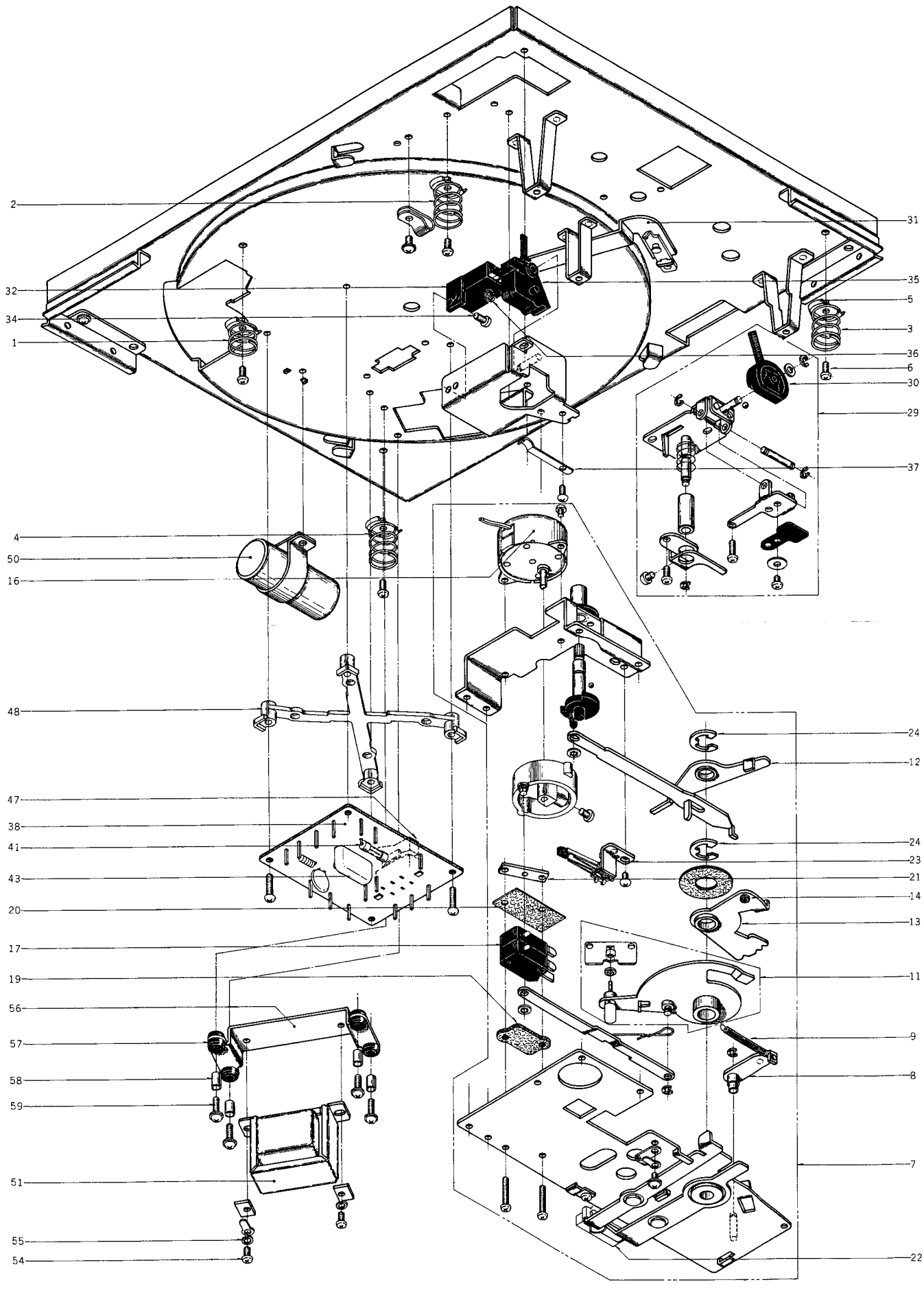
Ref. No.	Parts No.	Description	Schematic No.	Q'ty
		FLYWHEEL BLOCK #13		
12-115x	800425	Flywheel Block Assy. Comp.	RDG #13	1
12-116	244506	Flywheel Only	RD-233	1
12-117x	244754	Felt, Flywheel	RD-275	1
12-118	251324	Main Metal Case	RD-236	1
12-119	253080	Main Metal	RD-237	1

4. The symbol numbers shown on the P.C. Board list can be matched with the Composite Views of Components of the Schematic Diagram or Service Manual.
5. Please utilize separate "Common List for Service Parts" for Resistor Parts orders.
6. The shape of the parts and parts name, etc. can be confirmed by comparing them with the parts shown on the Electrical Parts Table of P.C. Board.
7. Both the kind of part and installation position can be determined by the Parts Number. To determine where a parts number is listed, utilize Parts Index at end of Parts List.
   It is necessary first of all to find the Parts Number. This can be accomplished by using the Reference Number listed at right of parts number in the Parts Index. (meaning of ref. no. outlined in Item 3 above).
8. Utilize separate "Price List for Parts" to determine unit price. The most simple method of finding parts Price is to utilize the reference number.

1. ILLUSTRATION OF ASSEMBLY BLOCK (1)



2. ILLUSTRATION OF ASSEMBLY BLOCK (2)



1) ASSEMBLY BLOCK (1)

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
	PANEL BLOCK			
1-1	SP715252	Panel AP-005	2071379500	1
1-2	ZG668880	Panel Screw B	CW-6031	4
1-3x	ZS718558	Screw (Special) 3x8, w/washer AP-003	2079591600	8
1-4	TP710021	Rubber Cap	2088176800	1
	SPEED CHANGE BLOCK			
1-5	BD718852	Sub Panel Block Comp. AP-003	2071166600	1
1-6	TP710122	Belt Guide	2074682100	1
1-7	BM236507	AC Motor AP-005	2212544300	1
1-8	ZW718953	Special Nut AP-003	2270251400	1
1-9	ZW718964	Washer 40BSN1 AP-003		1
1-10	ZW712236	'E' Ring 4M		2
1-11	MR718986	Motor Pulley 50 Hz AP-003	2071674200	1
1-12x	MR718997	Motor Pulley 60 Hz AP-003	2071674300	1
1-13	MB719008	Belt AP-003	2072861100	2
1-14	SB631157	Push Button E	CW-2014	2
1-15	SE613866	Button Escutcheon C	CW-6016	2
	TURN TABLE BLOCK			
1-16	TP710368	Turn Table	2072366700	1
1-17	TP709503	Table Sheet AP-001/C	2072368600	1
1-18	MV715307	Table Shaft Holder AP-005	2072566000	1
1-19	ZW719043	Special Nut AP-003	2079663100	1
1-20	ZW719054	Washer 91x340x8 AP-003	2079193700	2
1-21	ZS712765	Screw, pan head 30x4x4		1
1-22	MS715318	Table Shaft AP-005	2076469400	1
	AUTO CHASSIS BLOCK			
1-23	BD717557	PU Plate Block Comp. AP-005	2075178900	1
1-24	ZS715230	Screw, countersunk head 26x8 (PC)		1
	PU ARM BLOCK			
1-25	TP717568	PU Arm AP-005	2073174800	1
1-26	BL717570	Lifter Bar Block Comp. AP-005	2076165900	1
1-27x	ZS717581	Screw, flat socket 26x4		1
1-28	TP717592	PU Stand AP-005	2073564200	1
1-29x	ZS712372	Screw, cone point flat socket 40x10		1
1-30x	ZS719616	Tapping Screw #2 30x10 AP-003		3
1-31	BZ718806	Lifter Shaft Block Comp. AP-005	2076166000	1
1-32	BZ718817	PU Rest Block Comp. AP-005	2073869400	1

2) ASSEMBLY BLOCK (2)

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
	PANEL BLOCK			
2-1	ZG715263	Panel Spring A AP-005	2070383200	1
2-2	ZG715274	Panel Spring B, BLACK AP-005	2070383300	1
2-3	ZG715285	Panel Spring C, BLACK AP-005	2070383400	1
2-4	ZG715296	Panel Spring D, RED AP-005	2070383500	1
2-5	TP718604	Spring Holder AP-003	2079175600	4
2-6	ZS712225	Tapping Screw, pan head 30x8		4
	AUTO CHASSIS BLOCK			
2-7	BZ715320	Auto Chassis Block Comp. AP-005	2074177600	1
2-8	TP710594	Plate Set Assy.	2075176400	1
2-9	ZG710458	Pull Coil Spring	2070567200	1
2-10x	ZS716736	Tapping Screw, 30x8 (BR)	2079574000	3
2-11	BK716747	Operating Plate Cam AP-005	2075772300	1
2-12	BD716973	Select Plate B Block Comp. AP-005	2075178600	1
2-13	TP710583	Plate Select A Assy.	2075176200	1
2-14	TP710447	Bush	2088166600	1
2-15x	ZW710651	Washer D14x24x0.5t	2275275600	1
2-16	BM717186	Timing Motor AP-005	2212545300	1
2-17	ES711718	Micro SW.	2214642600	2
2-18x	ES709817	Micro SW. 5A 250V (BSI, SEMKO)	2214035100	2
2-19	TP711720	Sheet	2074376900	1
2-20	TP711731	Sheet	2074376800	1
2-21	ZW711742	Special Nut	2079668000	1
2-22	ES711786	Reed SW.	2214632200	1
2-23	ES717546	Muting SW. AP-005	2214633100	1
2-24	ZW711753	'E' Ring 10M		2
2-25x	ZS718615	Tapping Screw #2 30x8 (pan) AP-003		3
2-26x	ZS717401	Tapping Screw 30x6 (BR)		3
2-27x	ZS717423	Screw, pan head 30x30		2
2-28x	ZW709964	Spring washer 3M small AP-001/C		2
	HAND LIFTER BLOCK			
2-29	BL718828	Hand Lifter Block Comp. AP-005	R-030205	1
2-30	TP718830	Lifter Cam AP-005	2075770800	1
	MANUAL PLATE BLOCK			
2-31	BD719987	Manual Plate Block Comp.	2075178700	1
	ELECTRICAL PARTS BLOCK			
2-32	ES719998	Leaf SW. U/T, KMA, AST	2214035000	1
2-33x	ES720000	Leaf SW. BSI, CSA, CEE (SEMKO)	2214036500	1
2-34	ZS720011	Tapping Screw, 30x8 (BR)	2079574000	1
2-35	TP720022	Start Cam AP-005	2075770900	1
2-36	ZW712236	'E' Ring 4M		1
2-37	ZG720033	Plate Spring AP-005	2277254700	1
2-38	BA720044	P.C Board Comp. AP-005 U/T, KMA, AST	R-030206	1
2-39x	BA720055	P.C Board Comp. AP-005 BSI, CEE (SEMKO)	R-030221	1
2-40x	BA720066	P.C Board Comp. AP-005 CSA	R-030220	1
2-41	EF720077	Fuse 1A AP-005	2214424400	1
2-42x	EF720088	Fuse 160MA AP-005 BSI, CEE (SEMKO)	2214420600	1
2-43	EC709907	Metalized/C. 0.047μF 1000V	2237013990	1
2-44x	EC720090	MP/C. 0.047μF 250V AC BSI, CEE (SEMKO)	2233011400	1
2-45x	EC720101	Metalized/C. 0.1μF 125V AC CEE	2237016300	1
2-46x	EZ720112	Fuse Holder AP-005 BSI, CEE (SEMKO)	2216504700	2
2-47	ES712078	Seesaw SW.	2214649400	1

When ordering parts, Please describe Parts Number, Serial Number, and Model Number in detail.

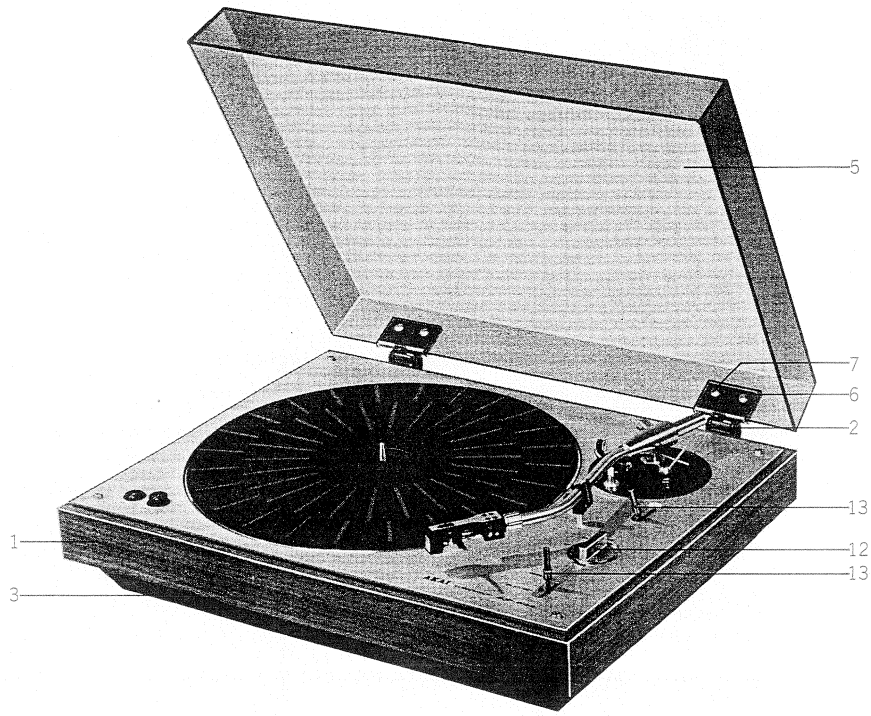
Ref. No.	Parts No.	Description	Schematic No.	Q'ty
2-48	EZ720123	P.C Board Stay AP-005 U/T, KMA	2074682200	1
2-49x	EZ720134	P.C Board Stay AP-005 BSI, CSA, CEE (SEMKO)	2074685300	2
2-50x	EJ720145	Output Terminal Plate AP-005	2216235000	1
2-51	BT720156	Power Trans. AP-005 U/T, KMA, AST	2222333900	1
2-52x	BT720167	Power Trans. AP-005 BSI, CEE (SEMKO)	2222334700	1
2-53x	BT720178	Power Trans. AP-005 CSA	2222330500	1
2-54	ZS718615	Tapping Screw #2 30x8 (pan) AP-003		2
2-55	ZW709964	Spring Washer 3M small AP-001/C		2
2-56	TP719684	Trans. Stay AP-003	2074685700	1
2-57	MB719695	Cushion Rubber AP-003	2088160200	4
2-58	TP719706	Spacer AP-003	2275285900	4
2-59	ZS719717	Special Screw 3x14, (BR) AP-003	2079594900	4
2-60	EC719741	MP/C. 6μF 150WV AP-003	2233011700	1
2-61x	EW711955	AC Cord 2.5M, U/L	2217619900	1
2-62x	EW711990	AC Cord 2.5M, 3 Core SAA	2217705100	1
2-63x	EW709986	AC Cord KMA AP-001/C	2217652400	1
2-64x	EW709997	AC Cord BSI AP-001/C	2217706900	1
2-65x	EW710065	AC Cord CEE (SEMKO) AP-001/C	2217652500	1
2-66x	EW710741	AC Cord AST AP-001/C	2217653100	1
2-67x	EW709604	PU Cord AP-001/C	2216434700	1
2-68x	TP712001	Cord Stopper UL	2088167600	1
2-69x	TP712012	Cord Stopper 3 Core	2218512600	1
2-70x	TP709795	Cord Bush KMA, CEE (SEMKO)	2218512900	1

3. PHOTO OF CABINET BLOCK

3) CABINET BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
3-1	BC720180	Cabinet AP-005	2084775200	1
3-2	TP719853	Hinge A AP-003	2086168700	2
3-3	SP720191	Bottom Case AP-005	2084661000	1
3-4x	SA718762	Foot (Rubber) AP-003	2084263400	4
3-5	BC720213	Dust Cover Block Comp. AP-005	2084782200	1
3-6	TP719897	Hinge B AP-003	2086168800	2
3-7	ZS720224	Screw, countersunk Head 40×10		4
3-8x	TP711011	Cord Retainer	2074679000	1
3-9x	TP711022	Cord Retainer	2074682600	1
3-10x	ZS720235	Wood Screw (Rud) 31×13		10
3-11x	TP720257	Rubber Cushion	2275683300	2
3-12	SK717434	Select Knob	2087186500	1
3-13	SK719537	Knob AP-003	2087186500	2
3-14x	TP718626	Lock Plate AP-003	2075393000	3
3-15x	ZS718637	Screw (Special), w/washer 4×12 AP-003	2079592700	3

3. PHOTO OF CABINET BLOCK



3) CABINET BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
3-1	BC720180	Cabinet AP-005	2084775200	1
3-2	TP719853	Hinge A AP-003	2086168700	2
3-3	SP720191	Bottom Case AP-005	2084661000	1
3-4x	SA718762	Foot (Rubber) AP-003	2084263400	4
3-5	BC720213	Dust Cover Block Comp. AP-005	2084782200	1
3-6	TP719897	Hinge B AP-003	2086168800	2
3-7	ZS720224	Screw, countersunk Head 40×10		4
3-8x	TP711011	Cord Retainer	2074679000	1
3-9x	TP711022	Cord Retainer	2074682600	1
3-10x	ZS720235	Wood Screw (Rud) 31×13		10
3-11x	TP720257	Rubber Cushion	2275683300	2
3-12	SK717434	Select Knob	2087186500	1
3-13	SK719537	Knob AP-003	2087186500	2
3-14x	TP718626	Lock Plate AP-003	2075393000	3
3-15x	ZS718637	Screw (Special), w/washer 4×12 AP-003	2079592700	3

INDEX

Parts No.	Ref. No.	Parts No.	Ref. No.	Parts No.	Ref. No.	Parts No.	Ref. No.	Parts No.	Ref. No.
BA720044	2-38	TP720022	2-35						
BA720055	2-39x	TP720257	3-11x						
BA720066	2-40x	ZG668880	1-2						
BC720180	3-1	ZG710458	2-9						
BC720213	3-5	ZG715263	2-1						
BD716973	2-12	ZG715274	2-2						
BD717557	1-23	ZG715285	2-3						
BD718852	1-5	ZG715296	2-4						
BD719987	2-31	ZG720033	2-37						
BK716747	2-11	ZS712225	2-6						
BL717570	1-26	ZS712372	1-29x						
BL718828	2-29	ZS712765	1-21						
BM236507	1-7	ZS715230	1-24						
BM717186	2-16	ZS716736	2-10x						
BT720156	2-51	ZS717401	2-26x						
BT720167	2-52x	ZS717423	2-27x						
BT720178	2-53x	ZS717531	1-27x						
BZ715320	2-7	ZS718558	1-3x						
BZ718806	1-31	ZS718615	2-25x						
BZ718817	1-32	ZS718615	2-54						
EC709907	2-43	ZS718637	3-15x						
EC719741	2-60	ZS719616	1-30x						
EC720090	2-44x	ZS719717	2-59						
EC720101	2-45x	ZS720011	2-34						
EF720077	2-41	ZS720224	3-7						
EF720088	2-42x	ZS720235	3-10x						
EJ720145	2-50x	ZW709964	2-28x						
ES709817	2-18x	ZW709964	2-55						
ES711718	2-17	ZW710651	2-15x						
ES711786	2-22	ZW711742	2-21						
ES712078	2-47	ZW711753	2-24						
ES717546	2-23	ZW712236	1-10						
ES719998	2-32	ZW712236	2-36						
ES720000	2-33x	ZW718953	1-8						
EW709604	2-67x	ZW718964	1-9						
EW709986	2-63x	ZW719043	1-19						
EW709997	2-64x	ZW719054	1-20						
EW710065	2-65x								
EW710741	2-66x								
EW711955	2-61x								
EW711990	2-62x								
EZ720112	2-46x								
EX720123	2-48								
EZ720134	2-49x								
MB719008	1-13								
MB719695	2-57								
MR718986	1-11								
MR718997	1-12x								
MS715318	1-22								
MV715307	1-18								
SA718762	3-4x								
SB631157	1-14								
SE613866	1-15								
SK717434	3-12								
SK719537	3-13								
SP715252	1-1								
SP720191	3-3								
TP709503	1-17								
TP709795	2-70x								
TP710021	1-4								
TP710122	1-6								
TP710368	1-16								
TP710447	2-14								
TP710583	2-13								
TP710594	2-8								
TP711011	3-8x								
TP711022	3-9x								
TP711720	2-19								
TP711731	2-20								
TP712001	2-68x								
TP712012	2-69x								
TP717568	1-25								
TP717592	1-28								
TP718604	2-5								
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TP718839	2-30								
TP719684	2-56								
TP719706	2-58								
TP719853	3-2								
TP719897	3-6								